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the College of Hawaii, etc. Honolulu, Hawaii. The Hawaiian Gazette Co., Ltd. 1915. 596 pp., 117 plates. (\$5.50 net.)

A "natural history" of Hawaii has long been a desideratum. Every year the numbers increase of those who seek our Pacific play-ground for health and recreation. Prof. Bryan has prepared an extensive handbook, interestingly written and admirably illustrated, covering a really wide range of subjects. The preface states that it has been the aim of the author to bring together into one volume the more important and interesting facts about the Hawaiian Islands and their primitive inhabitants, as well as information concerning the native and introduced plants and animals of the group. "To supply a guide that would provide reliable and readable information, in a form that would be welcomed by the general reading public, and, at the same time, that would meet the requirements of the homes, the schools, and the libraries of Hawaii and the mainland, as a convenient reference book, has been the author's endeavor."

"The casual reader will find the body of the text shorn of the technical verbiage and scientific names that so often distract, annoy and fatigue the layman. Where such terms have been indispensable they have been defined in the text, the footnotes, or in the index and glossary. Those who prefer their reading should rest on the firmer ground that definite nomenclature is supposed to impart, will find the necessary technical names of orders, families, genera and species, referred to in the text given in the footnotes, or in the cross-references in the index."

The book comprises an account of the native Hawaiian people; the geology, geography, and topography of the islands; the flora of the group; agriculture and horticulture; and a treatise on the animal life, occupying some seventeen chapters out of a total of thirty-seven. Chapters 22 to 25 are devoted to ornithology, the subject having been treated under the following subheads: Introduced Birds; Birds of the Sea; Birds of the Marsh, Stream and Shore; Birds of the Mountain Forests.

Unquestionably the most interesting birds of the main islands are those belonging to the Drepanididae which includes the majority of song birds of Hawaii, and "is perhaps the most remarkable example of the evolution of a group of birds to be found anywhere. While they are much alike in their general structure, they differ amazingly in the form of the bill and also exhibit striking differences in the color of the plumage.

In almost all other families the form of the bill is quite uniform among the species that belong to it. But among the Drepanididae of Hawaii we find them fitted by their structure to almost every kind of life for which a song bird in the tropics can become adapted. This adaptation of the bill has led to some most remarkable changes. From the firm, straight bill of the genus *Oreomystis*—the genus supposed to most closely conform with the ancestral form which may have come from America in very remote time, and the form from which all the other genera of the family are supposed to have evolved—we have widely different types of bills developed." One line of modification ends in a long, slender, and singularly curved bill with a tubular tongue, especially adapted to securing the nectar from long tubular flowers. Another terminates in *Chloridops kona*—a grosbeak-like bird that feeds on the flint-hard seeds of the bastard sandal-wood.

Unfortunately these queer, musky, anomalies are paying the penalty of extreme specialization. Confined, as many of them are, to very special foods, they are unable to meet the radically changed conditions incident to deforestation. Of a total of fifty-six living and extinct passerine birds which have been known to exist in the forests of the inhabited islands of the group, sixteen are now regarded as definitely extinct, while in the last decade other species have become very rare in districts where they were regarded as fairly common. Probably it is only a question of a short time before all but the least specialized will disappear.

One hundred and seventeen half-tone plates illustrate the work. The figures of the birds are mostly from the plates of Wilson and Evans's *Aves Hawaiienses*. Almost all the other plates of the book are from photographs direct from nature, or from prepared specimens. A very full, often annotated, index completes the work and renders easily accessible its extensive store of information. The text and illustrations, it may be added, are clearly and well printed, on good dull-finished paper.

The author is to be congratulated for producing a work which will give pleasure to many, undoubtedly stimulate interest, and long remain a standard reference work on the natural history of Hawaii.—W. K. FISHER.

BIRDS IN THEIR ECONOMIC RELATION TO MAN, by RICHARD C. MCGREGOR (Ornithologist, Bureau of Science, Manila, P. I.). [Philippine Bureau of Science, press bulletin.

tin. no. 32, revised. Issued December 29, 1915.]

Evidence of awakened interest in the economic value of birds has just come to us from the most distant of Uncle Sam's possessions, the Philippine Islands. Within the fourteen pages of the bulletin named above, and appearing under the authorship of a former Californian and pioneer member of the Cooper Ornithological Club, is to be found proof that interest is turning more and more toward the economic aspect of ornithology. The introduction asserts that the greatest value of birds is to be found in their "efficient control of weeds, snakes, small mammals such as rats and mice, and insects that eat and destroy plants and trees." The inclusion of snakes as pests to be destroyed would hardly find a place in a similar work in the United States, a point suggesting the marked difference in conditions existing in the temperate zone and in the tropics. The introduction further points out that the purpose of the bulletin is to suggest how the value of birds may be recognized, and the more important benefits be derived, through popular appreciation of wild birds and an increased interest in them. A short resume of the work done by the United States Biological Survey is followed by a discussion of certain groups of birds whose food habits make them of interest to the Philippine agriculturist. Only general statements as to the probable nature of the food are given. The one bird considered of no use "about a farm house or cocoanut grove" is the crow.

The following recommendations as means to the end sought are advanced: The attracting of birds by means of food, water, and nesting boxes; the destruction of natural enemies such as cats; the protection of insectivorous birds from gunners and trappers; and the formation of a society, similar to the Audubon Society, for the protection of birds. The keeping of poultry is also recommended as a means of controlling locusts.

If the bulletin had been intended as a contribution to knowledge it would have been of little significance; for it is largely a collection of general facts regarding the relation of birds to agriculture gleaned from economic papers published elsewhere, and is lacking in definite data as to local conditions. The evident fact that the paper was designed purely to arouse interest in the subject of economic ornithology among the inhabitants of the Philippine Islands

places it in a different and wholly favorable light. It should also be noted that this bulletin is preliminary to definite work on the food of Philippine birds along the lines of that carried on by the United States Biological Survey.—HAROLD C. BRYANT.

MINUTES OF COOPER CLUB MEETINGS

NORTHERN DIVISION

DECEMBER.—The regular monthly meeting of the Northern Division of the Cooper Ornithological Club was held at the Museum of Vertebrate Zoology, Berkeley, California, Thursday evening, December 16, 1915, at 8 p. m. President Joseph Mailliard was in the chair with the following members present: Mesdames Allen, Grinnell and Schlisinger, Misses Culver and Wythe, and Messrs. Bryant, Bolander, Carriger, Evermann, Hubbs, Storer and Taylor. Among the visitors were Mrs. Taylor and Messrs. Ferris and Martens.

The minutes of the Northern Division November meeting were read and approved and the minutes of the Southern Division and Inter-Mountain Chapter for November were read. The following were elected to membership: H. W. Daniels, Mrs. Sophie E. Gay, and Mrs. Adele Lewis Grant. The following proposals for membership were read: Miss Edna A. Hannibal, R. F. D. no. 1, San Jose, proposed by J. O. Snyder; Harold E. Hansen, 870 43d Ave., San Francisco, proposed by Tracy I. Storer; and Curtis Wright, Jr., 6436 Benvenue Ave., Berkeley, proposed by H. C. Bryant. Also the names proposed at the Southern Division November meeting were read.

The Secretary read a letter from Mr. Henry W. Henshaw, Chief of the United States Bureau of Biological Survey, thanking the Club for its recent action in electing him to honorary membership.

Nominations for officers of the Division for the coming year resulted as follows: President, Tracy I. Storer; Vice-president, H. W. Carriger; Secretary, Mrs. A. S. Allen.

H. C. Bryant, as Game Expert of the California Fish and Game Commission, stated that the Commission was considering the placing of the American and Snowy egrets on the list of prohibited birds mentioned in collectors' licenses and stated that the Commission would appreciate any recommendations which the Club might make along this line. After some discussion it was decided upon motion by Mr. Bryant to have the